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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,814	01/11/2002	Utpal Datta	14411HUUS02U (NORT10-0007)	8029
7590 08/09/2004			EXAMINER	
DENIS G. MALONEY Fish & Richardson P.C. 225 Franklin Street Boston, MA 02110-2804			DUNCAN, MARC M	
			ART UNIT	PAPER NUMBER
			2113	

DATE MAILED: 08/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/044,814	Applicant(s) DATTA ET AL.	
	Examiner Marc M Duncan	Art Unit 2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-17 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the Claims

Claims 1-6, 8 and 10-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Chandra et al.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chandra et al. in view of Schofield et al.

Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandra et al. in view of Schweitzer et al.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph.

Claim 7 is objected to.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "easily checkpointed" in claim 4 is a relative term that renders the claim indefinite. The term "easily checkpointed" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. There is no description whatsoever of what makes a transaction easily checkpointed, aside from the transaction being single/atomic. The examiner has determined, therefore, that any

transaction not specifically described as being difficult to checkpoint is, in fact, easily checkpointed and has examined claim 4 under such interpretation in order to provide a full and complete examination at this time.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 8 and 10-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Chandra et al.

Regarding claim 1:

Chandra teaches context check-pointing state of processing in the component to permit automatic recovery of the component to the component's most recent processing context checkpoint in col. 1 lines 22-32, lines 52-57 and lines 65-66.

Chandra teaches executing operating system facilities to provide automatic recovery of the system components to the component's most recent processing context in col. 1 lines 28-32, lines 65-66 and col. 5 lines 23-25.

Regarding claim 2:

Chandra teaches maintaining the component's processing context as in-memory object and as a disk-based file in col. 8 lines 45-48 and col. 9 lines 45-46. It is inherent

that a processor will maintain the processing context as an in-memory object in order to execute the process.

Regarding claim 3:

Chandra teaches re-starting the component from its last check-pointed processing context during a subsequent recovery of the component in the system in col. 5 lines 17-20.

Regarding claim 4:

Chandra teaches wherein components are nodes where changes in the processing context of the component are characterized as generally single/atomic transactions or other transactions that are easily check-pointed in col. 4 lines 48-50 and col. 5 lines 23-25.

Regarding claim 5:

Chandra teaches executing the component as an "Immortal" process under management of the operating system in col. 4 lines 10-11 and col. 5 lines 23-25.

Regarding claim 6:

Chandra teaches executing the component as an "Immortal" process causing the operating system to automatically re-start the component from its most recent checkpoint state in col. 4 lines 10-11, col. 5 lines 23-25 and col. 9 lines 5-7.

Regarding claim 8:

Chandra teaches wherein in the event of a graceful or non-graceful shutdown of a component or the system, the system state is preserved, and is used to restore the system back to its last known state in col. 5 lines 17-20 and col. 9 lines 5-7.

Regarding claim 10:

The claim is rejected as the computer program product for performing the method of claim 1.

Regarding claim 11:

The claim is rejected as the computer program product for performing the method of claim 2.

Regarding claim 12:

The claim is rejected as the computer program product for performing the method of claim 3.

Regarding claim 13:

The claim is rejected as the computer program product for performing the method of claims 5 and 6.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chandra et al. in view of Schofield et al.

Regarding claim 9:

The teachings of Chandra are outlined above.

Chandra does not explicitly teach wherein the component stores copies of records received for backup and restore purposes, enabling the records to be re-processed in the event of a downstream system failure. Chandra does, however, teach recovering and restarting resources in a distributed computing system.

Schofield teaches wherein the component stores copies of records received for backup and restore purposes, enabling the records to be re-processed in the event of a downstream system failure col. 9 lines 56-65.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the log teachings of Schofield with the teaching of restarting in a distributed computing system of Chandra.

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings because Schofield teaches that by saving copies of records in order to allow a REDO operation to be performed, a fault tolerant method of resource recovery is achieved, thereby meeting an explicitly expressed need of Chandra.

Claims 14-17 rejected under 35 U.S.C. 103(a) as being unpatentable over Chandra in view of Schweitzer et al.

Regarding claim 14:

The teachings of Chandra are outlined above.

Chandra does not explicitly teach the process being a network accounting process. Chandra does, however, teach a distributed computing environment on which processes are running.

Schweitzer teaches a network accounting process in a distributed computing environment in col. 2 lines 52-53.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the network accounting process of Schweitzer with the distributed checkpointing system of Chandra.

One of ordinary skill in the art at the time of invention would have been motivated to combine the teachings because Chandra teaches a checkpointing method for nodes and processes running on a distributed computing environment and the checkpointing method of Chandra allows for a high level of fault tolerance for processes running on nodes in a distributed system, such as the network accounting processes of Schweitzer.

Regarding claim 15:

Chandra teaches wherein the data processing domain is a run-time node manager, a run-time data manager or an administrative configuration manager in Fig. 2 and col. 5 lines 65-67. The cluster manager is a run-time node manager.

Regarding claim 16:

Chandra teaches wherein the data processing domain further comprises: a recovery manager that executes the computer program product to recover a state of the data processing domain in col. 5 lines 64-67.

Regarding claim 17:

Schweitzer teaches wherein the at least one network accounting process is a data collector process that produces network accounting records, or an aggregation process that aggregates network accounting records, or an enhancement process that enhances attributes of network accounting records, or an output interface process that produces records for use by an application in Fig. 2 and col. 3 lines 65-67.

Allowable Subject Matter

Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Prior art was not found that explicitly teaches or fairly suggests where the current state includes the process status of which components are executing and a list of usage data that has been successfully processed as outlined in claim 7. These limitations are considered allowable only when taken in combination with all limitations of the base claim and any intervening claims.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art not relied upon contains elements of the instant claims and/or represents a current state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc M Duncan whose telephone number is 703-305-4622. The examiner can normally be reached on M-T and TH-F 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on 703-305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

md


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